

## Reactions of synthetic phenolic antioxidants with electrogenerated titrants and their analytical applications

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### Abstract

Synthetic phenolic compounds (pyrogallol, catechol, hydroquinone, and their derivatives bearing heterocyclic fragments) react with electrogenerated titrants, halogens, and ferricyanide(III) ions. Stoichiometric coefficients of reactions are found. It is shown that the use of ferricyanide(III) ions as a titrant and a one-electron oxidant for the determination of this class of antioxidants offers advantages in comparison with titrants-halogens. The found amounts of pyrogallol, pyrocatechol, and hydroquinone derivatives in model solutions with the RSD 1-5% are fractions of milligrams. It is found that, in the series of the studied synthetic phenolic compounds, pyrocatechol derivatives possess the maximum antioxidant capacity (AOC). © Pleiades Publishing, Ltd., 2010.

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